AEROSOL SCIENCE AND TECHNOLOGY

THE JOURNAL OF THE AMERICAN ASSOCIATION FOR AEROSOL RESEARCH

AAAR Office, 1330 Kemper Meadow Drive, Cincinnati, OH 45240 Phone: (513) 742-2020 Fax: (513) 742-3355

VOLUME 23, NUMBER 1, 1995

SPECIAL ISSUE
INTERACTIONS OF PARTICLES WITH SURFACES

Overview 1
Patrick F. Dunn

Particle-Surface Interactions: Charge Transfer, Energy Loss, Resuspension, and Deagglomeration 2
Walter John

Particle Bounce or Capture—Search for an Adequate Theory: I. Conservation-of-Energy Model for a Simple Collision Process 25
Barton Dahneke

Inelastic Energy Transfer in Particle/Surface Collisions 40
Ronald P. Andres

Macrodynamics of Microparticles 51
Raymond M. Brach and Patrick F. Dunn

New Perspectives on Rebound and Reentrainment Processes 72
Kyaw Tha Paw U and David Alan Braaten

Experiments on the Low-Velocity Impact of Microspheres with Planar Surfaces 80
Patrick F. Dunn, Raymond M. Brach, and Michael J. Caylor

Solid Particle Collection Characteristics on Impaction Surfaces of Different Designs 96
Chuen-Jinn Tsai and Yu-Hsiang Cheng

Calendar of Events 107

VOLUME 23, NUMBER 2, 1995

Fractal Dimension Analysis of Single, In-Situ, Restructured Carbonaceous Aggregates 109
S. Nyeki and I. Colbeck

A System for Aerodynamically Sizing Ultrafine Radioactive Particles 121
O. O. Olawoyin, T. M. Raunemaa, and P. K. Hopke

Atmospheric Gas-Aerosol Equilibrium: IV. Thermodynamics of Carbonates 131
Zhaoyue Meng, John H. Seinfeld, Predeep Saxena, and Yong Pyo Kim

On-Line Determination of Particle Size and Density in the Nanometer Size Range 155
Susanne V. Hering and Mark R. Stolzenburg

The Effect of Turbulence on Rates of Particle Formation by Homogeneous Nucleation 174
T. Lesniewski and S. K. Friedlander

Evaluation of Sintering of Nanometer-Sized Titania Using Aerosol Method 183
Takafumi Seto, Manabu Shimada, and Kikuo Okuyama

Computer Simulation of Particle Deposition in the Upper Tracheobronchial Tree 201
Amy Li and Goodarz Ahmadi

Vortices in Anisoaxial Sampling Inlets 224
Chih-Chieh Chen and Paul A. Baron

Radioactive Aerosols Emission in Fires 231
Yvette Fernandez and Patrick Burghoffer

Intercomparison between Commercial Condensation Nucleus Counters and an Alternating Temperature Gradient Cloud Chamber 239
D. J. Alofs, C. K. Lutrus, D. E. Hagen, G. J. Sem, and J. L. Blesener

TECHNICAL NOTES

Use of Ambient Aerosols for Measuring Filter Efficiencies 250
George E. R. Lamb

Experimental Verification of Using Cumulative Efficiency Curves for Determining Stage Constants of a Cascade Impactor 253
Lu Zhengyong, Li Aiwu, and Fu Cuiming

The Particle Detection Efficiency Curve of the TSI-3010 CPC as a Function of the Temperature Difference between Saturator and Condenser 257
S. Mertes, F. Schröder, and A. Wiedensohler

Calendar of Events 262

VOLUME 23, NUMBER 3, 1995

Single Particle Characterization by Time-of-Flight Mass Spectrometry 263
W. D. Reents, Jr., S. W. Downey, A. B. Emerson, A. M. Mujsce, A. J. Muller, D. J. Siconolfi, J. D. Sinclair, and A. G. Swanson

Incense Smoke: Characterization and Dynamics in Indoor Environments 271
Y. S. Chen, W. E. Bechtold, C. C. Yu, and I. F. Hung

The Effect of Fiber Inertia on Its Orientation in a Shear Flow with Application to Lung Dosimetry 282
Bahman Asgharian and Satish Anjilvel

Deposition of Refractory Ceramic Fibers (RCF) in the Human Respiratory Tract and Comparison with Rodent Studies 291
C. P. Yu, L. Zhang, G. Oberdöster, R. W. Mast, D. Maxim, and M. J. Utell

Random and Systematic Errors in the Graded Screen Technique for Measuring the Diffusion Coefficient of Radon Decay Products 301
Earl O. Knutson

Analytical Solution of Flow Field and Pressure Drop for Filters with Noncircular Fibers 311
Ming Ouyang and Benjamin Y. H. Liu

Measurements and Control of Particle Deposition Velocity on a Horizontal Wafer with Thermophoretic Effect 321
Gwi-Nam Bae, Chun Sik Lee, and Seung O. Park

Hygroscopic Growth of Consumer Spray Products 331
S. K. Dua, P. K. Hopke, and T. Raunemaa

Design and Test of a Polar Nephelometer 341
Keng H. Leong, Matthew R. Jones, Donna J. Holdridge, and Mark Ivey

Radial Differential Mobility Analyzer 357
Shou-Hua Zhang, Yoshiaki Akutsu, Lynn M. Russell, Richard C. Flagan, and John H. Seinfeld

Distinguishing Between Spherical and Nonspherical Particles by Measuring the Variability in Azimuthal Light Scattering 373
Bernd A. Sachweh, William D. Dick, and Peter H. McMurry

Thermodynamics of the Acidic $(NH_4)_2SO_4$–H_2SO_4–H_2O System at ~25°C 392
A. W. Stelson

Measurements of the Activity-Weighted Size Distributions of Radon Decay Products Outdoors in Central New Mexico with Parallel and Serial Screen Diffusion Batteries 401
Piotr T. Wasiolek and Yung-Sung Cheng

SO_2 Oxidation and H_2O–H_2SO_4 Binary Nucleation by Radon Decay 411
F. He and P. K. Hopke

Kinematic Coagulation of Charged Droplets in an Alternating Electric Field 422
Kari E. J. Lehtinen, Jorma K. Jokiniemi, Esko I. Kauppinen, and Jukka Hautanen

Characterization of Morphological Changes in Agglomerates Subject to Condensation and Evaporation Using Multiple Fractal Dimensions 431
G. Ramachandran and Parker C. Reist

Phase Transformation and Metastability of Hygroscopic Microparticles 443
I. N. Tang, K. H. Fung, D. G. Imre, and H. R. Munkelwitz

Application of Time-Resolved Fluorescence Spectroscopy on the Analysis of PAH-Coated Aerosols 454
Frank Lewitzka and Reinhard Niessner

Deposition of Ultrafine Aerosols in the Head Airways During Natural Breathing and During Simulated Breath Holding Using Replicate Human Upper Airway Casts 465
Kuo-Hsi Cheng, Yung-Sung Cheng, Hsu-Chi Yeh, and David L. Swift

TECHNICAL NOTES

Particle Size Distribution of Airborne Dusts Using a Scanning Electron Microscope 475
K. W. Terry

Calendar of Events 479

VOLUME 23, NUMBER 4, 1995

Comparative Study of Pressure Reducers for Aerosol Sampling from High-Purity Gases 481
Jae-Keun Lee, Kenneth L. Rubow, David Y. H. Pui, and Benjamin Y. H. Liu

Asymmetric Instrument Response Resulting from Mixing Effects in Accelerated DMA-CPC Measurements 491
Lynn M. Russell, Richard C. Flagan, and John H. Seinfeld

A High-Output, Size-Selective Aerosol Generator 510
HungMin Chein and Dale A. Lundgren

The Development of a New Thermophoretic Precipitator for Scanning Transmission Electron Microscope Analysis of Ultrafine Aerosol Particles 521
Andrew D. Maynard

Characterization of Aerosolized Ovalbumin 534
Daniel D. Martin, Douglas R. Winters, A. Jeff Mohr, and Bruce G. Harper

Deposition of Ultrafine Aerosols and Thoron Progeny in Replicas of Nasal Airways of Young Children 541
Yung-Sung Cheng, Shawna M. Smith, Hsu-Chi Yeh, Dai-Byung Kim, Kuo-Hsi Cheng, and David L. Swift

The Effects of Temperature on Particle Size in the Gas-Phase Production of TiO_2 553
Hee Dong Jang and Jinki Jeong

Gas/Aerosol Distribution of Formic and Acetic Acids 561
Zhaoyue Meng, John H. Seinfeld, and Pradeep Saxena

Optimization of Pleated Filter Designs Using a Finite-Element Numerical Model 579
Da-Ren Chen, David Y. H. Pui, and Benjamin Y. H. Liu

Inverting High Spectral Resolution Aerosol Optical Depth to Determine the Size Distribution of Atmospheric Aerosol 591
U. Amato, F. Esposito, C. Serio, G. Pavese, and F. Romano

An Experimental Investigation for Agglomeration of Aerosols in Alternating Electric Fields 603
J. Kildesø, V. K. Bhatia, L. Lind, E. Johnson, and A. Johansen

Stochastic Modeling of a New Spectrometer 611
Charles Hagwood, Kevin Coakley, Antoine Negiz, and Kensei Ehara

Ion Densities and Particle Charges for Alpha Ionization in an Aerosol Atmosphere: Columnar Recombination Corrections 628
Y. S. Mayya and W. Holländer

Fibrous Particle Deposition in a Turbulent Channel Flow—An Experimental Study 641
William Kvasnak and Goodarz Ahmadi

Fluorescence Particle Counter for Detecting Airborne Bacteria and Other Biological Particles 653
Ronald G. Pinnick, Steven C. Hill, Paul Nachman, J. David Pendleton, Gilbert L. Fernandez, Michael W. Mayo, and John G. Bruno

Removal of Fine Particles from Smooth Flat Surfaces by Consecutive Pulse Air Jets 665
Yoshio Otani, Norikazu Namiki, and Hitoshi Emi

Note of Appreciation and Thanks 674

Calendar of Events 678

Author Index 680

Title Index 683